

**FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
WATERFOWL PERMIT PROGRAM
2006-2007 ANNUAL REPORT**

Abstract: Florida is visited by more than 20 species of migratory waterfowl each year. Four species of ducks regularly nest in the state during spring and summer. Waterfowl provide significant economic and recreational benefits to the citizens of Florida. This report documents efforts by the Florida Fish and Wildlife Conservation Commission (FWC) to manage Florida's waterfowl during fiscal year 2006-07.

Waterfowl management activities fall into two categories: population monitoring and habitat management. The Waterfowl Management Program (WMP) coordinated the banding of 579 mottled ducks and 1,115 wood ducks during 2006. Mottled ducks and wood ducks were captured at bait sites and by night-lighting. Reports of band encounters allow us to measure hunting pressure on these ducks. Hunters can dial 1-800-327-BAND (inscribed on the band) or visit www.pwrc.usgs.gov/BBL/ to report band information.

A main concern for mottled duck conservation is hybridization between introduced domestic mallards and mottled ducks. The resulting genetic swamping of mottled ducks by mallards could lead to the loss of Florida's mottled duck as a distinct species. The WMP devoted substantial effort to this problem in 2006-07.

Providing appropriate waterfowl hunting opportunities for Florida's citizens is a primary mission of the WMP. Hunting seasons are established in Florida to maximize hunter opportunity within the constraints of sound resource stewardship and guidelines mandated by the U.S. Fish and Wildlife Service (USFWS). The WMP participated in the national process for setting waterfowl hunting regulations and developed recommendations for the FWC Commission concerning appropriate regulations in Florida.

Habitat management allows us to improve the habitat quality and quantity necessary to support Florida's waterfowl and other wetland wildlife. Waterfowl biologists provided technical assistance on wetland conservation and management issues around the state. We worked with many agencies, organizations, and private landowners to cooperatively manage wetlands.

**FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
WATERFOWL PERMIT PROGRAM
2006-2007 ANNUAL REPORT**

Waterfowl are among the most recognized and economically important wild animals in North America. In Florida, naturalists, bird watchers, and hunters spend countless hours enjoying these birds. As human impact on the environment has increased, negative impacts on waterfowl populations also have increased. The Florida Fish and Wildlife Conservation Commission's (FWC) Waterfowl Management Program (WMP) is charged with ensuring the continued well-being of these popular birds.

The passage of the Florida Duck Stamp Act in 1979 created the WMP and provided a mechanism for funding. This act requires that all Florida waterfowl hunters purchase a three-dollar waterfowl permit. The proceeds are devoted to management of Florida's waterfowl resource. In 2006-07, 12,092 waterfowl permits (including 220 five-year permits) were sold. Sportsman's licenses also include a waterfowl permit, and 27,776 of these licenses were sold. Revenue from waterfowl permits and sportsman's licenses totaled \$122,244. Consistent with legislative provisions, 5% of this revenue was expended on administration, 25% on waterfowl research, and 70% on waterfowl management. These expenditures represented 20% of the \$601,304 that was spent on waterfowl administration, research, and management.

During 2006-07, the WMP continued its efforts to increase public awareness of Florida's waterfowl resource through a web site, Florida's Waterfowl (www.MyFWC.com/duck). The web site provides information on Florida's resident and migrant waterfowl, habitat conservation, and waterfowl hunting, as well as results from waterfowl population surveys in Florida and links to other sites of interest to waterfowl enthusiasts.

The WMP worked cooperatively during the year with two important stakeholder groups, Ducks Unlimited (DU) and United Waterfowlers of Florida (UW-F). UW-F is an organization dedicated to representing the interests of Florida's waterfowl hunters. WMP activities with these groups included coordinating cooperative projects and providing technical assistance on issues of mutual interest. WMP staff participated in the annual state DU convention in Lake City in April 2007. More than 100 DU members attended in the convention. Waterfowl biologists also contributed several articles for DU's state newsletters.

FWC's Waterfowl Management Standing Team completed a draft strategic plan to guide future waterfowl management. The plan has three goals: (1) conservation and enhancement of resident waterfowl populations and habitats, (2) leadership in the conservation and enhancement of continental waterfowl populations and habitats, and (3) recreational use and public support resulting in the enhancement and conservation of waterfowl populations and habitat. During 2007-08, the team will prioritize plan elements.

The WMP participated in two efforts during fiscal year 2006-07 to monitor for important avian diseases: highly pathogenic avian influenza (HPAI) and duck virus enteritis (DVE). FWC assisted in efforts to monitor for HPAI in Florida as part of the national early detection system for Asian H5N1 in migratory birds. WMP staff coordinated

collection of more than 500 samples from hunter harvested waterfowl at several waterfowl check stations throughout the state. FWC's overall sampling efforts also included birds captured alive and birds found dead of unknown causes. We exceeded our statewide goal of 650 samples from all sources combined. Nationwide, the HPAI sampling effort totaled 85,424. The Asian H5N1 strain of HPAI was not identified in North America during 2006-07 surveillance efforts. The WMP will continue to work with state and federal agencies in surveillance efforts for HPAI. The WMP also cooperated with Southeastern Cooperative Wildlife Disease Study to collect samples as part of an ongoing research project investigating duck virus enteritis DVE. WMP staff coordinated collection of more than 200 samples from Florida mottled ducks and northern pintails. Samples were collected from hunter-killed birds encountered at several waterfowl check stations statewide to determine prevalence of the dormant stage of DVE. DVE is an acute, contagious, and often fatal disease affecting waterfowl. It was first identified in Florida in muscovy ducks in April 2006.

The remaining waterfowl management programs are best understood if grouped biologically. Florida wetlands support breeding (resident) and migrant (wintering) waterfowl, and our management targets the populations and habitats of these birds.

POPULATION AND HABITAT MANAGEMENT

Population monitoring allows us to track the number of ducks over time. Annual population estimates and other population parameters help us manage for maximum hunting opportunity while sustaining healthy waterfowl populations. Moreover, accurate population information provides a basis for directing waterfowl conservation efforts where they are most needed and effective.

Habitat management helps us provide the greatest quantity and highest quality habitat possible to support Florida's waterfowl and other wetland-dependant wildlife. Without a large habitat base that includes breeding, migration, and wintering areas, waterfowl populations will decline. Habitat management and conservation have importance beyond their value to waterfowl because wetlands benefit many other plant and wildlife species.

Two external programs enhance FWC's ability to conserve and manage wetland habitat for both resident and migratory waterfowl. DU provides matching money to help states acquire and enhance wetland habitat. FWC's matching funds for these projects in Florida are budgeted through the legislature. Since this program's inception, FWC's projects completed by partnering with DU have helped restore and enhance more than 16,000 acres of wetland habitat in Florida. Florida is part of the Atlantic Coast Joint Venture (ACJV) of the North American Waterfowl Management Plan. Joint ventures create partnerships to plan, fund, and implement wetland habitat projects within their respective geographic areas. The ACJV, like the other joint ventures, serves to implement wetland habitat management objectives and establish and maintain waterfowl population goals identified in the plan. ACJV partnerships will provide substantial benefits to Florida's fish and wildlife resources. The WMP provides input on ACJV activities in Florida.

RESIDENT SPECIES

The four species of ducks that regularly breed in Florida are the mottled duck, wood duck, fulvous whistling duck, and black-bellied whistling duck. All four species nest during

spring and summer. Mottled ducks remain in Florida throughout the year. Many wood ducks and fulvous whistling ducks remain year-round as well, but some of these birds migrate from Florida for part of the year. Black-bellied whistling ducks also occur in Florida year-round, but we have no information on seasonal movement patterns. Conservation plans for wood ducks, fulvous whistling ducks, and black-bellied whistling ducks are being developed. Current management for mottled ducks is guided by FWC's "A Conservation Plan for the Florida Mottled Duck 2004-2009."

Florida's Mottled Duck

The Florida mottled duck is one of approximately 25 closely related, mallard-type species worldwide. This subspecies occurs only in Florida and does not migrate from the state; therefore, management and protection of Florida's mottled ducks are primarily the responsibilities of the State of Florida. Hunters favor this bird because of its large size and palatability. Florida hunters harvested an estimated 13,146 mottled ducks during the 2006-07 hunting season, which accounted for approximately 8% of the statewide harvest of ducks. We remain concerned about the long-term status of Florida's mottled duck population throughout its range because low reproduction and survival have been documented, important habitat in Florida continues to be altered or lost, and hybridization with feral mallards continues. Because of these concerns, the conservative daily bag limit for the harvest of this species remains at one.

Mottled Duck Population Monitoring and Management. – Annual mottled duck population monitoring includes banding and a March aerial survey of the breeding population. During the summer of 2006, 579 mottled ducks were captured and marked with leg bands. Over the past ten years, 4,688 mottled ducks have been banded (Figure 1). Banding data are periodically analyzed to estimate annual survival rates and the proportion of the population that is harvested, as well as to monitor movements.

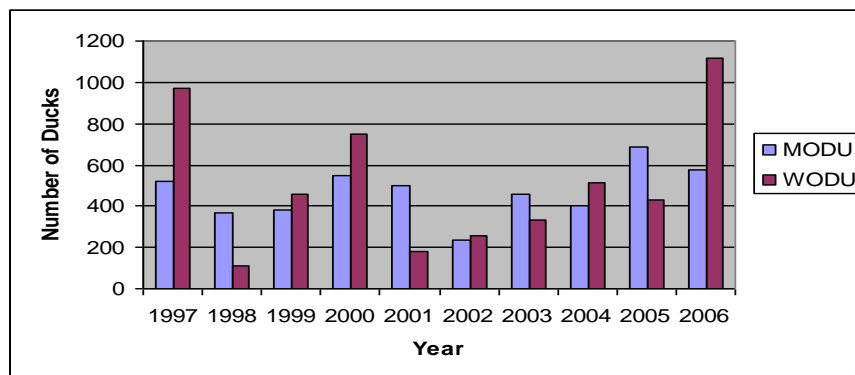


Figure 1. Numbers of Florida mottled ducks (MODU) and wood ducks (WODU) banded statewide by FWC staff, 1997-2006.

The March breeding population survey has been conducted since 1985, and FWC waterfowl biologists have been evaluating a new survey method since 2003. The new method, point-transect sampling, was intended to replace the original line-transect design. There are three important benefits of this new survey design as compared to the previous line-transect design, which was conducted prior to 2003. First, point-transect methods allow us to efficiently collect accurate data from all types of mottled duck habitat, including urban/suburban areas, throughout their range. Second, point-transect sampling is less

stressful on observers and utilizes direct distance measurements (i.e., employs laser range finders). As a result, more accurate data can be collected and more flexible analysis employed. Perhaps most importantly, this design is safer for the participants because much less time is spent flying at low altitudes and slow speeds.

For the first time during the development of the new survey method, we were able to sample the entire survey area in 2007, thanks to additional funding (\$30,000) supplied by the United States Fish and Wildlife Service (USFWS). Results from the 2007 survey using the new survey methodology indicated that the mottled duck density within the central region of the mottled duck range was an estimated 1.8 birds per square kilometer of wetland habitat, or 31,754 birds within the surveyed area. Waterfowl biologists consider this a conservative estimate. Nonetheless, 2007 marks the first year we have been able to estimate the size of the mottled duck breeding population from survey data. This estimate is similar to the estimate of 40,000 from previously published work on Florida mottled ducks from the 1980's. The fact that these two estimates are very similar lends credence to the new survey estimate and methods.

Mottled Duck Habitat Management. -- The WMP continued efforts on the Mottled Duck Production Area (MDPA), a 1,400-acre, state-owned tract in Highlands County. The MDPA is a cooperative project between FWC and DU.

The greatest density of nesting mottled ducks in the state occurs in prairie habitats of the peninsula. These habitats are used extensively for cattle ranching and other agriculture, which are an important part of Florida's economy. Therefore, the MDPA has been used primarily as a research area to identify viable grazing schemes to benefit mottled duck nesting and brood-rearing conditions. In 2006-07, we continued to work cooperatively with Mr. Matt Pearce of Rock Hill Ranch in Okeechobee to graze cattle on the MDPA. We continued to investigate the effects of continuous and rotational beef-cattle grazing on mottled duck habitat and assess plant community dynamics resulting from grazing management scenarios. Vegetation sampling began in May 2003 and continued through spring, 2007. Our goal for the area has been to provide a demonstration site to educate the public on the relationships between cattle grazing and mottled ducks in southern Florida.

The WMP evaluated the MDPA project in early 2007 before starting the process to renew 5-year agreements with Division of State Lands' Board of Trustees and the cooperating rancher. These agreements expire at the end of 2007. The Waterfowl Management Standing Team, after considering this evaluation, recommended discontinuing the MDPA project. The team made this recommendation because we have learned as much as is practicable, given the capabilities and limitations of the property. The results of the project led to the following conclusions:

- Results suggest a negative effect of continuous grazing on the height and density of vegetation over time. Conversely, rotating cattle among separate pastures was associated with an overall increase in vegetation height and density. However, in both continuous and rotational pastures, the height and density of vegetation were much lower than at nest sites chosen by mottled ducks (findings from a separate study).
- Results from the study suggest that there is little potential to produce quality nesting habitat from grazed bahiagrass (improved pastures), regardless of the grazing

scheme. Unimproved pasture or native prairie subject to grazing may have more potential to provide good nesting cover.

- The area is not large enough to allow sufficient replication to make reliable inferences about effects of grazing schemes. Therefore, using this particular property to address additional related questions does not seem like a good idea.

Based on this recommendation, FWC has decided to discontinue this project at the end of 2007, after completing the existing agreements.

Mottled Duck Conservation. – Waterfowl biologists completed the data-collection portion of a study of habitat use, survival, and movements of Florida mottled duck females in the Upper St. Johns River Basin (USJRB) in 2003. A manuscript entitled “Survival and Cause-Specific Mortality of Adult Female Mottled Ducks in East-Central Florida” was published in the Wildlife Society Bulletin in 2006 and another paper entitled "Habitat Use and Movements of Adult Female Mottled Ducks in East-Central Florida" is being modified and will be submitted for publication during 2007. We hope to secure the necessary funding to continue a second phase of this research, which would take place in the Everglades Agricultural Area and urban/suburban areas to the east from July 2008 through August 2011.

The FWC’s overall plan for addressing the mallard x mottled duck hybridization problem has three objectives: (1) develop techniques to identify hybrids, (2) assess the proportion and distribution of hybrids in the mottled duck population, and (3) identify and implement mechanisms to reduce hybridization. During fiscal year 2004-05, FWC biologists and Boston University researchers completed their initial work to develop of a technique to identify hybrids. This effort revealed six genetic markers that provide a composite genetic fingerprint for mottled ducks and feral mallards in Florida. Using this fingerprint, researchers estimated that between seven and 12 percent of the Florida mottled duck population was of hybrid origin. This is a significant proportion and indicates a serious hybridization problem, which, if not quelled, could result in the extinction of the Florida mottled duck.

During the past two years, we extended the study and identified seven additional genetic markers, which may greatly refine our ability to detect hybrids. To assess the current set of 13 genetic markers, during fiscal year 2007-08, we plan to obtain additional genetic samples from “pure” mallards and pure mottled ducks. Once we have assessed the utility of the genetic markers and have identified a large enough sample of known mallards, mottled ducks, and hybrids, we will begin work on the development of a key or field guide to identifying hybrids by plumage and structural characteristics. Such a key could reduce the need for costly genetic analyses. When this genetic work is complete, we plan to periodically monitor the ingress of mallard genes into the mottled duck population and the effectiveness of efforts to stop it.

We continued progress on the third objective, that is, to identify and implement mechanisms to reduce hybridization. We believe that the most important strategy for reducing hybridization is an education and communication program. FWC’s efforts on this front focus on maximizing public awareness of the issue, based on the assumption that available funding will be minimal. Strategies are to reduce the sale and subsequent release

of mallards, gain wider acceptance for reduction of the mallard population, and create an awareness of the problem among identified stakeholders. In 2006-07, we continued to develop and distribute informational material, make presentations and contacts to groups and organizations, and coordinate media coverage. We worked with FWC's Division of Law Enforcement on an effort in spring 2007 to visit businesses selling ducks (e.g., feed stores, auctions). The purpose was to send the message that we are serious about regulating mallard possession and sale. Officers reminded the businesses of our regulations related to mallards and how the rules apply to their business. While providing flyers and information about mallard regulations, officers also checked for proper permits and inquired whether sellers were checking for permits required by the buyers. Although no citations were issued during this effort, the law-enforcement presence at the businesses should have conveyed the intended message. The WMP developed an identification guide to mallards, mottled ducks, and hybrids, for FWC's officers. The pocket-sized, laminated guide includes photographs showing plumage characteristics and enforcement guidance to assist officers when enforcing hunter bag limits and checking mallard control permits.

We will continue to implement plans to address the hybridization problem and work toward accomplishing the identified tasks, as resources allow.

Wood Duck

Wood ducks are perhaps the most beautiful duck in North America and are admired by people throughout the state. The most abundant resident duck species of Florida, wood ducks also are highly valued by Florida hunters. Wood ducks ranked sixth in hunters' bags and made up approximately 6% of the total duck harvest in Florida in 2006-07. The USFWS estimated that 9,561 wood ducks were harvested in Florida during the 2006-07 duck hunting seasons.

Wood Duck Population Management. -- Wood ducks inhabit wooded, brushy, or other vegetated wetland areas. Therefore, unlike other duck species, wood ducks cannot be counted reliably during aerial surveys. Consequently, populations have been monitored through banding, experimental monitoring of nest boxes, and harvest surveys. These efforts have been critical to continuing the special September duck season for Florida's hunters.

In 2006, WMP coordinated the banding of 1,115 wood ducks prior to the hunting season. A total of 5,106 wood ducks have been banded over the past 10 years (Figure 1). The 2006 banding effort was aided by a cost-share grant of approximately \$10,000 from the USFWS. This funding allowed us to hire a seasonal technician to help with wood duck banding. Information from band recoveries indicates that hunting pressure on Florida's wood ducks is lower than for wood ducks in other Atlantic Flyway states. Previous analysis of banding data indicated that a high proportion of wood ducks banded during the summer in Florida that are harvested by hunters are taken within the state. This information supports increased opportunity for hunting Florida's wood ducks.

Estimates of hunter effort and harvest are used to help determine whether the extra harvest allowed by the special September duck season in Florida is compatible with the well-being of Florida's wood duck population. The USFWS estimated that hunters harvested 1,726 wood ducks and 7,835 teal in Florida during this special season in 2006. Previous work by the WMP indicated that Florida's wood ducks have been harvested at a low rate, reproduction of wood ducks in Florida has been typical for the species and higher

than for other duck species, and the population growth rate for females in Florida was not statistically different from that of a stable population. No evidence was found to suggest that the September season was causing negative effects on wood duck populations.

Wood Duck Habitat Management. -- Wood ducks are cavity nesters. Many areas with adequate brood-rearing habitat do not contain trees large enough to have suitable nesting cavities. Fortunately, man-made nest boxes can provide nest sites. WMP biologists and other FWC staff maintained nest boxes existing on Wildlife Management Areas and other public water bodies. WMP personnel provided technical assistance to private citizens, government agencies, and groups such as local DU chapters and Boy Scout troops to erect and maintain nest boxes.

Fulvous and Black-bellied Whistling Ducks

The whistling ducks are more closely related to geese than to ducks. Fulvous whistling ducks have separate populations in Asia, Africa, Madagascar, South America, and North America. Prior to about 40 years ago, neither species of whistling ducks nested in Florida. Today, nesting fulvous whistling ducks are abundant in South Florida where rice is grown. In winter, many fly south, apparently to Cuba. Florida's black-bellied whistling duck population seems to have increased dramatically in recent years, and reports of successful breeding exist from many areas of the state.

Whistling Duck Population Management. -- Lack of funds and personnel has prevented the WMP from extensively monitoring or managing these populations.

Whistling Duck Habitat Management. -- To promote good management for fulvous whistling ducks and black-bellied whistling ducks, the WMP encourages shallow flooding of fallow agricultural fields and rice culture in place of sugar cane.

MIGRATORY WATERFOWL

This large group includes waterfowl that breed in northern North America and migrate to Florida during the fall and winter. Approximately 20 species of waterfowl regularly spend the winter in Florida, and the migratory ducks constitute at least 80% of all waterfowl harvested by Florida hunters. Resident waterfowl species compose the remaining 20%. The estimated duck harvest in Florida during the 2006-07 hunting seasons totaled 163,500 birds. This is a 6% decrease from the 2005-06 season estimated harvest (174,800) and somewhat lower than the 1981-90 average of 181,000.

Habitat in wintering areas, such as Florida, is important in the annual cycle of migratory waterfowl. Habitat conditions during this non-breeding period influence survival and subsequent reproduction. Ducks must maintain or improve their body condition during winter to avoid mortality during the spring migration and to meet the physiological demands of the nesting season (i.e., egg laying, incubation). The WMP devotes considerable resources to monitoring and managing these migrant birds and providing quality habitat.

Migrant Waterfowl Population Management

Ring-necked ducks are particularly important in Florida because they constitute a large proportion of the state's annual waterfowl harvest. A majority of the ring-necked ducks in the Atlantic Flyway spend the winter in Florida, and, on average, approximately 66% of ring-necked ducks harvested in the flyway are harvested here. The WMP provides

funding for cooperative banding efforts in Canada and remains vigilant in encouraging Canadian waterfowl managers to continue banding ring-necked ducks on the breeding grounds. These efforts are important for justifying continued harvest opportunities for this species.

Florida participates in international waterfowl management by sending FWC representatives to serve on the Atlantic Flyway Council and its Technical Sections as voting members. Representatives from 17 states and six Canadian provinces participate. This council coordinates international research, monitoring, and management in the flyway and makes recommendations to the USFWS concerning appropriate waterfowl hunting seasons. The WMP coordinator is Florida's technical representative for game birds and represents the Atlantic Flyway on a national technical working group tasked with developing Adaptive Management procedures for waterfowl harvest management. The Adaptive Harvest Management Working Group is composed of two representatives from each administrative flyway and biologists from the USFWS. One FWC waterfowl management staff member participated in the Atlantic Flyway's 2007 Wing Bee. At the Wing Bee, which is part of the USFWS's annual harvest survey, biologists examine a sample of wings from harvested waterfowl to estimate composition of the harvest with respect to species, age, and sex. Florida participates in several other cooperative flyway projects, helping to ensure that Florida's waterfowl enthusiasts continue to have access to this valuable resource.

Providing appropriate waterfowl hunting opportunities for Florida's citizens is a primary mission of the WMP. Hunting seasons are established in Florida to maximize hunter opportunity within the constraints of sound resource stewardship and guidelines mandated by the USFWS. The WMP develops recommendations for the FWC Commission concerning appropriate waterfowl hunting regulations in Florida.

Migrant Waterfowl Habitat Management

Florida lost approximately 260,000 acres of freshwater, emergent wetlands between 1985 and 1996. This habitat type is essential for waterfowl, yet losses continue. Waterfowl management staff manages habitat through technical assistance to various agencies, groups, and individuals (Table 1) and through administration of public waterfowl areas. Not all technical assistance produces a tangible increase in waterfowl habitat, but this input does cause the welfare of wetlands and associated wildlife to be considered when resource management decisions are made. As a result, waterfowl habitat in the state is conserved and enhanced.

Staff continued to work with several entities and private landowners during the 2006-07 fiscal year to evaluate numerous wetland habitat conservation projects. Entities included DU, the Natural Resource Conservation Service Wetlands Reserve Program, ACJV, Water Management Districts, Florida Department of Environmental Protection, the USFWS, and several local and county governmental offices. Examples of projects evaluated include Promise Ranch in Lake County, Crooked Lake and Archbold Biological Station in Highlands County, Curry Island in Glades County, Copeland Sink in Leon County, Winding Waters in Palm Beach County, Gamble Creek and Myakkahatchee Ranch in Manatee County, Doan Bay Slough in Sarasota County, and Corkscrew Swamp Ecoregion Watershed in Lee County. Staff is also involved in several on-going planning efforts as they relate to restoring and enhancing water level regulation for Lakes Istokpoga, Okeechobee, Tohopekaliga, Cypress, Hatchineha, and Kissimmee.

Waterfowl staff participated in FWC teams responsible for coordinating (1) management of fish and wildlife habitat on the Kissimmee Chain of Lakes and the Orange Creek Basin, (2) the use of triploid grass carp for aquatic plant management to improve fish and wildlife habitat, and (3) management of Lake Lafayette. As part of the team effort on the Kissimmee Chain of Lakes, the WMP coordinator leads an effort by a sub-team to set quantitative objectives for managing the aquatic vegetation to provide fish and wildlife habitat. The WMP coordinator also participated in a multi-agency group to develop a risk-assessment for stocking triploid grass carp in public waters for aquatic plant control. Furthermore, staff participated in a wetlands ecology workshop sponsored by FWC's Aquatic Habitat Restoration and Enhancement Section. The objective of the workshop was to bring together agency personnel involved with administering and managing Florida's wetlands to collectively gain a mutual understanding of wetland ecological principles as they relate to fish and wildlife communities and their associated habitats.

DU, with assistance from the FWC, completed the structural upgrade of Hickory Mound Impoundment (HMI), in Taylor County in June 2006. Hickory Mound Impoundment is part of the Big Bend Wildlife Management Area. The structural upgrade included refurbishing the levee, installing two 1,000-ft. spillways, and replacing culverts controlling water exchange between the impoundment and the Gulf of Mexico. Additionally, DU prepared a draft wetland management plan for HMI, which was reviewed by Commission staff and the Florida Subcommittee on Managed Marshes during fall 2006. HMI staff revised and finalized the management plan according to the input received. The impoundment is now being managed according to the plan.

T. M. Goodwin Waterfowl Management Area. -- This 6,300-acre area in the upper St. Johns River Basin continues to provide important habitat for migrating, wintering, and resident waterfowl and other wetland-dependent wildlife, as a result of intensive management. The WMA is composed of two management units: T. M. Goodwin (Goodwin) and Broadmoor Marsh (Broadmoor).

The 2006-07 waterfowl hunting season provided for 1,629 hunter-trips, during which hunters harvested 5,362 ducks, for an average of 3.3 ducks per hunter-trip. Blue- and green-winged teal made up the majority of ducks harvested. Additional species included mottled duck, black-bellied whistling duck, northern pintail, ring-necked duck, American wigeon, wood duck, and others. A youth waterfowl hunt occurred on February 3, 2007, followed by three days of snipe hunting in early February. Other public use activities included scouting/observing, bird watching, biking, hiking, and fishing.

A change to the hunt reservation system was also put in place this year. Under the previous reservation system hunters called the area office every Wednesday during the waterfowl season to request a hunting permit. This system proved to be cumbersome and time consuming for FWC staff as well as the hunters. The new system now utilizes FWC's Total Licensing System, which is an internet based system.

Management during the year included enhancing wetland habitat by disking, roller-chopping, prescribed burning, and water level manipulations to encourage growth of desirable native plants. Routine maintenance included levee repairs (e.g., filling in low sections, reshaping and regrading), maintaining parking areas and other public use

facilities, and mowing approximately 35 miles of levees. A commercial diver was hired in September to replace the hinge pins for the flap gates on both Broadmoor pumps. In October, one of the Broadmoor pumps was forced out of the riser channel due to water pressure and was later removed using a crane. We are redesigning the Broadmoor pump station due to problems caused by the current design. Contractors treated with herbicide approximately 810 acres of para grass in selected impoundments at Goodwin and Broadmoor. In addition, approximately 100 acres of hyacinths and water lettuce were treated at Broadmoor with assistance from the St. Johns River Water Management District. Herbicide was applied aerially with a helicopter, and all herbicide treatments were effective in controlling the targeted exotic plants.

The Conceptual Management Plan for the T. M. Goodwin WMA was presented to the St. Johns River Water Management District at the December 2006 Project and Lands Committee meeting in Vero Beach. The plan was subsequently approved by the District and will be revised in 2014.

The Broadmoor Phase II Project was also completed during the summer of 2007. This project entailed constructing approximately three miles of shallow levees and replacing and adding water-control structures. The new levees will now allow us to sufficiently flood the northern portions of the three northernmost impoundments. These new water control structures will greatly enhance our ability to better manage water levels within the impoundments. With the District's assistance, all requisite permits had been issued by the Department of Environmental Protection and the United States Army Corps of Engineers by November 2006. After a pre-bid conference, which was held at Goodwin in January, 2007, the project was awarded to Chesterfield Properties, Inc. Construction began in early April and was completed by June 2007.

PROGRAM DIRECTION AND NEEDS

Florida's WMP has been in existence for more than 25 years. Our challenge has been large and our resources limited. During this time, we have made substantial contributions to the knowledge and habitat base needed to manage and sustain waterfowl in Florida and internationally. Our population monitoring efforts yield information necessary for management. Informing the public is an important part of our efforts to ensure the well-being of the waterfowl resource (Table 2).

Our challenge for the future is to continue population monitoring and management, while using up-to-date information to increase involvement in habitat issues. We believe the biggest opportunity to reduce the hybridization threat to mottled ducks by feral mallards is through public education and marketing of the message. The extent to which we are able to accomplish this is substantially limited by funding. Further, we have insufficient recurring funds for conducting the annual mottled duck survey. Efforts to conserve and manage mottled duck habitat are limited because we need additional scientific information on which to base sound recommendations. However, we have insufficient funds to obtain this scientific information. Coordinating activities between the WMP and other entities involved in habitat and conservation issues will remain a challenge. Continued funding of cooperative habitat projects with DU programs is still vital. However, this program is intended only for acquisition and development of habitat projects. Additional funding is necessary to operate and maintain these and any other new waterfowl habitat projects after they are developed. We continue to seek funding from external grants and

other sources to meet these unfunded needs.

Table 1. Entities that received technical assistance from waterfowl personnel during fiscal year 2006-07.

Florida State Agencies

Florida Fish and Wildlife Conservation Commission
 Division of Habitat and Species Conservation
 Division of Freshwater Fisheries Management
 Division of Law Enforcement
 Office of Community Relations
 Fish and Wildlife Research Institute
 Office of Recreation Services
 Office of Licensing and Permitting
 Department of Environmental Protection
 South Florida Water Management District
 St. Johns River Water Management District
 Suwannee River Water Management District
 Florida Department of Health
 Florida Park Service, Myakka River State Park
 Subcommittee on Managed Marshes

Other State or Provincial Agencies

South Carolina Department of Natural Resources
 Louisiana Department of Wildlife and Fisheries
 Texas Parks and Wildlife Department
 Alberta Sustainable Resource Development, Fish and Wildlife Division
 North Carolina Wildlife Resources Commission

Federal Agencies

U.S. Department of Agriculture--Wildlife Services
 U.S. Fish and Wildlife Service
 Natural Resource Conservation Service (NRCS)
 U.S. Park Service--Gulf Island National Seashore
 U.S. Geological Survey
 U.S. Forest Service
 Eglin Air Force Base

State-Federal Cooperative Entities

Southeastern Cooperative Wildlife Disease Study

Local Government

Lake Alachua, Indian River, Palm Beach, Lee, Duval, and Leon counties
 Brevard County Public Schools
 Indian River County Public Schools
 City of Jacksonville's Preservation System

Table 1, continued. Entities that received technical assistance from waterfowl personnel during fiscal year 2006-07.

Universities and High Schools

University of Florida, Institute of Food and Agricultural Services
 University of Florida, Department of Wildlife Ecology and Conservation
 University of Florida, School of Veterinary Medicine
 Louisiana State University
 Texas A&M University

Non-governmental Organizations

Ducks Unlimited Inc., national, state chapter, and various local chapters
 United Waterfowlers – Florida
 National Wildlife Federation
 Florida Wildlife Federation
 Boy Scouts of America
 North American Wetlands Conservation Council
 Atlantic Coast Joint Venture
 Space Coast Audubon Society
 Delta Waterfowl
 Wildlife Management Institute
 Lake McBride Homeowners Association
 Tall Timbers Research Station

Businesses

Bass Pro Shops
 Hammond Groves
 Okeelanta Corporation
 Walt Disney World Corporation
 Anheuser-Busch Corporation
 Montalbano and Company – Consulting Biologists, LLC
 St. Joe Land Development Company
 Tractor Supply
 Winn Dixie
 CPR Companies
 Universal Orlando
 Malabar Feed and Farm
 Animal House Pets
 Crescent TS Cattle Company

Citizens

(numerous)

Table 2. List of waterfowl management reports and publications, fiscal year 2006-07.

-
- Bielefeld, R. R. 2007. 2007 mottled duck survey report. Unpublished report. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida, USA.
- Eggeman, D. R. 2006. National duck hunter survey measures hunters' opinions. United Waterfowlers Florida, Inc. Ringer News 5(1).
- Fedderson, J. C. 2006. Monitoring avian influenza in Florida. Ducks Unlimited Wingbeats. Fall 2006.
- Fedderson, J. C. 2006. Duck bands are more than decorations for your lanyard. Ducks Unlimited Wingbeats. Fall 2006.
- Fedderson, J. C., S. V. Rockwood, and D. R. Eggeman. 2007. Lake Harbor: Review of an agriculture project designed to improve wildlife habitat in south Florida. Poster presented at The Wildlife Society – Florida Chapter Spring Meeting in St. Petersburg, Florida, April 11-13, 2007. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida, USA.
- Fedderson, J. C. 2007. South Brevard Chapter improves access for mobility-impaired hunters. Ducks Unlimited Wingbeats. Spring 2007.
- Florida Fish and Wildlife Conservation Commission. 2007. Project update for Mottled Duck Production Area, Highlands County, Florida. Unpublished report. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida, USA.
- Florida Fish and Wildlife Conservation Commission. 2007. Final project report for Lake Harbor Public Small Game Hunting Area 1987 - 2004. Unpublished report. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida, USA.
- Florida Fish and Wildlife Conservation Commission. 2006. Waterfowl permit program -- 2005-06 annual report. Unpublished report. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida, USA.
- McMunigal, J. M., and S. V. Rockwood. 2006. 2006 2nd Quarter Report for the T. M. Goodwin Waterfowl Management Area. Unpublished report. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida, USA.
- McMunigal, J. M., and S. V. Rockwood. 2007. 2006 Annual Report for the T. M. Goodwin Waterfowl Management Area. Unpublished report. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida, USA.